

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/523,775	ALT ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Ling-Siu Choi	1713	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to October 24, 2006.
2. ☒ The allowed claim(s) is/are 1-6, 8-16 and 18-22.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____.   |

**DETAILED ACTION**

1. This Office Action is in response to the Amendment filed October 24, 2006.

Claims 7, 17, and 23-24 were canceled. Claims 1-6, 8-16, and 18-22 are now pending, wherein claims **1-6 and 21-22** are drawn to a Ziegler catalyst; claims **8-11 and 18** are drawn to a process to prepare a Ziegler catalyst; claims **12-16 and 19-20** are drawn to a process to prepare 1-olefin homopolymers and copolymers.

***Allowable Subject Matter***

2. Claims 1-6, 8-16, and 18-22 are allowed.

3. The following is an examiner's statement of reasons for allowance:

The present claims are allowable over the closest references: Nishimura et al. [US 6,320,003 B1 (EP 0 522 424 A2)], Buehler et al. (US 5,610,246), and Kataoka et al. (JP 05-301921 A).

Summary of Claim 1:

A <b>Ziegler catalyst</b> <u>consisting essentially of</u> the reaction product of	
A	a magnesium alkoxide
B	a titanium compound
C	a chlorine-containing organoaluminum compound
D	an additional compound comprising a compound of M-R <sub>x</sub> with R being halogen and M being an element of main group IV of the periodic Table

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## Summary of Claim 21:

A <b>Ziegler catalyst</b> <u>consisting</u> the reaction product of	
A	a magnesium alkoxide
B	a titanium compound
C	an organometallic compound
D	<p>an additional compound comprising a compound of <b>M-R<sub>x</sub></b> with</p> <p><b>R</b> being halogen and alkyl having from 1 to 10 carbon atoms, oxyalkyl having from 1 to 10 carbon atoms, cycloalkyl having from 4 to 8 carbon atoms in the ring and from 0 to 6 substituents R' on the ring, or aryl having from 6 to 10 carbon atoms in the aromatic and from 0 to 6 substituents R' on the aromatic, wherein R' is a halogen or an alkyl radical having from 1 to 4 carbon atoms or an OH group or an NO<sub>2</sub> group or an oxyalkyl radical having from 1 to 4 carbon atoms</p> <p><b>M</b> being an element of main group IV of the periodic Table</p> <p>x is an integer from 1-4</p>

Nishimura et al. disclose a catalyst system for olefin polymerization, comprising a **solid catalyst component** being prepared by reacting a homogeneous solution containing (i) an oxygen-containing organic compound of magnesium, (ii) **at least one zirconium compound**, and (iii) at least one silicon compound with (iv) at least one organoaluminum halide compound to obtain a solid product and further reacting with (v) at least one halogen-containing compound of titanium, wherein the oxygen-containing organic compound of magnesium can be a magnesium alkoxide and the silicon compound can be silicon tetrachloride or silicon tetrabromide (col. 2, lines 29-52; col. 3, lines 53-67; col. 5, line 53-55). However, Nishimura et al. do not teach or fairly suggest a **Ziegler catalyst component** consisting essentially of (1) a magnesium alkoxide, (2)

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a titanium compound, (3) a chlorine-containing organometallic compound, and (4) a compound of  $M-R_x$  with R being halogen and M being an element of main group IV of the periodic Table.

Buehler et al. disclose a catalyst system for olefin polymerization, comprising a **catalyst component** comprising the product prepared by the contact of a component obtained by contacting (i) silica with (ii) 2-methyl pentyloxy magnesium chloride; and then with (iii) silicon tetrachloride; (iv) trichlorosilane  $[SiH_rX_s]$  with  $r$  and  $s = 1-3$ ; (v) titanium tetracresylate; and (vi) titanium tetrachloride (claim 1). However, Buehler et al. do not teach or fairly suggest a **Ziegler catalyst component** consisting essentially of (1) a magnesium alkoxide, (2) a titanium compound, (3) a chlorine-containing **organoaluminum compound**, and (4) a compound of  $M-R_x$  with R being halogen and M being an element of main group IV of the periodic Table.

Kataoka et al. disclose a **catalyst component** obtained by contacting (i) diethoxy magnesium with (ii) tetrabutoxytitanium and (iii) silicon tetrachloride and further contacting with (iv) titanium tetrachloride in the presence of (v) an aromatic dicarboxylic acid (abstract). However, Kataoka et al. do not teach or fairly suggest a **Ziegler catalyst component** consisting essentially of (1) a magnesium alkoxide, (2) a titanium compound, (3) a chlorine-containing **organoaluminum compound**, and (4) a compound of  $M-R_x$  with R being halogen and M being an element of main group IV of the periodic Table.

In light of the above discussion, it is evident as to why the present claims are patentable over the prior art.


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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.

  
LING-SUI CHOI  
PRIMARY EXAMINER

November 15, 2006